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Memorandum

Date: January 13, 2014

To: Mr. Ray Bransfield, USFWS

Cc: Peter Godfrey, BLM
Kim Marsden, BLM
Marisa Mitchell, Recurrent Energy

From: AECOM Staff

Subject: Golden Eagle (*Aquila chrysaetos*) Analysis for the Recurrent Energy Cinco Project, Kern County, California

Recurrent Energy (RE) (the Applicant) is proposing to construct the RE Cinco Project (Solar Facility Project), a nominal 60-megawatt commercial electric-power-generating project using photovoltaic (PV) technology, and a generation tie line connecting to the Los Angeles Department of Water and Power (LADWP) Barren Ridge substation (Gen-tie Project). These two projects are collectively referred to as the Projects and where they are located is known as the Project site. This document addresses the potential impacts to golden eagle (*Aquila chrysaetos*), a State of California fully protected species, from construction, operation, and decommissioning of the Projects. No golden eagle surveys were conducted for the Projects; however, golden eagle surveys were conducted in 2011 for the nearby Beacon PV project (CH2M Hill 2011), and those results are included in this analysis. Permission was received from LADWP to use the data from the Beacon PV project (now owned by LADWP) for the purposes of this analysis.

Project Location

The Projects would be located in unincorporated southeastern Kern County, approximately 6.5 miles northwest of the community of California City, approximately 12 miles northeast of the community of Mojave, and approximately 0.8 mile south of the Los Angeles Aqueduct. The 500-acre solar facility development area is located on one 594-acre privately owned parcel, which consists entirely of vacant land. The parcel is bisected by State Route (SR) 14, which also provides access to the parcel. Other features consist of a LADWP transmission corridor easement extending through the northeast corner of the parcel north and west of the solar facility development area, and Phillips Road, which extends through the southeast portion of the parcel and south and east of the solar facility development area.

Project Description

The Solar Facility Project involves development of an independent solar PV power-generating facility near the towns of California City and Mojave within Kern County,

California. The Solar Facility Project includes installation of solar PV panels and associated facilities, including a substation within the 500-acre development area; equipment pads; interior access roads; perimeter fencing; and construction storage, staging, and laydown areas. The Gen-tie Project would include a 230-kV transmission line and supporting features, including a maintenance access road, spur roads, and pull and splice sites.

The Gen-tie Project would be constructed within a right-of-way (ROW) on land owned by the federal government and administered by the Bureau of Land Management (BLM). Use of the federal land would involve issuance of a ROW grant to the Applicant by BLM.

The total Solar Facility Project disturbance area would be 500 acres, with approximately 94 acres left undeveloped, including the area east of SR-14, the small northwestern area west of the existing LADWP transmission corridor easement, and the riparian extent of the major drainage on the west edge of the property.

The separate Gen-tie Project impact acreage will depend on the configuration selected, but is estimated to include approximately 1.9 acres of permanent impacts and 9.8 acres of temporary impact based on the current conceptual design (see discussion below).

The Solar Facility Project would consist of the following components: (1) a solar field of PV panels mounted on steel and aluminum structures, (2) an electrical collection system that would aggregates the output from the PV panels and convert the electricity from direct current (DC) to alternating current (AC) via inverters, (3) a substation where the electrical output would be combined and its voltage increased by transformers, and (4) internal infrastructure such as roads, fences, and an operations and maintenance building.

The Gen-tie Project would be constructed predominantly on federally owned land administered by BLM, and would convey power from the solar project to the local power grid via a generation tie-line that would connect to the LADWP Barren Ridge Substation located approximately 1.75 miles from the Project site. The Gen-tie Project would consist of monopoles, access roads, and pull/splice sites. Lattice structures may be used on either side of Pine Tree Canyon Wash in place of monopoles to facilitate spanning the wash at a lower height and avoiding impacts to jurisdictional waters. This would also reduce the number of poles. The 150-foot-wide ROW for the Gen-tie Project would be approximately 1.9 miles long and encompass approximately 36.3 acres. The Gen-tie Project would consist of approximately 11 poles, with an average span of 400 feet between poles to accommodate structures and conductors and 2 lattice structures. All components associated with the Gen-tie Project would be located within the proposed 150-foot-wide ROW.

Survey Methodology

Four 1-day raptor surveys were conducted in May 2011 by biologists with Rincon Consultants to identify special status raptors, such as golden eagles, that may occur within the Project site and a 1-mile buffer (Rincon Consultants 2011). Surveys included a visual inspection of all potential nesting areas (e.g. towers, cliffs, Joshua trees). Biologists also

surveyed for soaring individuals within the Project site and a 1-mile buffer. The entire Project site and buffer area were searched each visit with a focus in areas with the highest potential for raptors (e.g. cliffs, ridgelines, towers).

Golden eagle nest surveys were conducted June 2 through June 7, 2011, by CH2M HILL biologists for the Beacon PV project (CH2M HILL 2011). The project site for the Beacon PV project is located a few miles northeast of the Project site along SR-14. Golden eagle surveys included a 10-mile radius aerial survey of all potential golden eagle nesting areas (cliffs, trees, transmission towers, etc.) around the Beacon PV project. This 10-mile radius encompasses the Project site. Aerial surveys conducted for the Beacon PV project followed the U.S. Fish and Wildlife Service (USFWS) Interim Golden Eagle Inventory and Monitoring Protocols (Pagel et al. 2010).

Golden eagle nest surveys were conducted by aerial survey over 252,304 acres to look for new golden eagle nests and to verify the location and status of known golden eagle nests based on data from BLM. The details of the golden eagle nest survey methodology are documented in the CH2M HILL 2011 survey report, and summarized below.

Nest locations were recorded using resource-grade Trimble Geo XT handheld global positioning system (GPS) units; a Robinson 44 helicopter was used to conduct surveys. The survey area included the Beacon PV project site and a 10-mile radius. Map grids, each measuring approximately 5 by 4 miles, were established and overlaid over the survey map to assist with the aerial survey effort.

Transects between 0.25 and 0.5 mile apart were flown across each map grid, with greater focus in areas of suitable golden eagle nesting habitat and structures (rock outcrops, cliffs, large trees, transmission line towers). When a nest was located, the biologist recorded nest attribute data, including species, nest type, nest status, nest condition, nest height, substrate, substrate height, nest aspect, and GPS accuracy.

Results

No golden eagles were observed during the May 2011 raptor surveys of the Project site (Rincon Consultants 2011). The closest golden eagle nesting location as of spring and summer 2011 was approximately 3.5 miles to the north of the northern terminus of the Gen-tie Project, where it enters the LADWP Barren Ridge Substation (Figure 1). This location had three nests on a cliff located a few hundred feet from each other, all of which were recorded as inactive in 2011. The closest active golden eagle nest in 2011 was approximately 5 miles to the west of the Project site (CH2M HILL nest ID 31 or BLM Nest ID 4 in CH2M HILL 2011). This golden eagle nest was recorded as having two fledgling golden eagles in June 2011. This nest was located on a cliff approximately 200 feet above ground level, with a north aspect within Pine Tree Canyon. Since this nest site is west of the Project site with a north aspect and surrounding mountainous terrain, it is not possible for golden eagles to see the Project site from the nest location. The nest is on a north-facing aspect and located at an elevation of approximately 4,050 feet. There is a ridgeline between the

golden eagle nest and the Project site that is approximately 4,180 feet; therefore, it is not possible for a golden eagle at the nest location to see the Project site. In addition, noise attenuation from construction at this distance, and with the intervening topography, would be such that eagles located at this nest site would not hear noise generated at the Project site. There are additional active and inactive golden nests located farther away (more than 5 miles from the Project site), which are detailed in the CH2M HILL 2011 report and shown on Figure 2. Per USFWS Interim Golden Eagle Inventory and Monitoring Protocols (Pagel et al. 2010), aerial surveys including a 10-mile radius buffer around project sites are suggested. Additional nests within the 10-mile radius buffer are historically known based on data from the USFWS, BLM, and some of the nests were found by CH2M HILL during aerial surveys for the Beacon PV project (CH2M HILL 2011).

Discussion

Golden eagles are known to prey upon a variety of mammalian and avian species, as well as feed on carrion. One of the primary prey species for golden eagles throughout much of their range is black-tailed jackrabbits (*Lepus californicus*) (Kochert et al. 2002), which inhabit creosote bush (*Larrea tridentata*) scrub within the Mojave Desert. The primary vegetation community within the Project site is creosote bush scrub. Golden eagles forage over vast amounts of area depending on prey availability, and home ranges may extend from approximately 8.5 to 12.7 square miles during the breeding season (Kochert et al. 2002). Given the large amount of potential foraging area around the Project site, 500 acres is a relatively small portion. The surrounding habitat is mature creosote bush scrub where golden eagles would still be able to forage.

No golden eagles were observed within the Project site or on the nearby Beacon PV project site during surveys; however, they may occasionally forage within the Project site. The closest recorded active nest as of 2011 was approximately 5 miles west within Pine Tree Canyon with a north aspect. This nest location is unlikely to be negatively affected by project construction or operation due to the project distance, lack of direct line of sight, and mountainous terrain between the nest and the Project site.

The Solar Facility Project would use PV technology to create electricity; there is no need for evaporation ponds or other ponded water features that may attract wildlife species that golden eagles might prey on. The primary potential impacts to golden eagle would occur through an increase in available perching structures in the form of 13 new utility poles/towers within the Gen-tie Project. The attraction of utility poles to golden eagles would be a risk, as electrocutions are a leading cause of eagle mortality. However, this risk can be managed and minimized by constructing utility poles and towers according to Avian Power Line Interaction Committee (APLIC) construction standards (APLIC 2012), which would minimize the risk of electrocution. The monopole structures would not support nesting for golden eagles. The two lattice structures, if used to cross Pine Tree Creek Wash, would be designed/fitted to prevent golden eagles from nesting. In addition, electrical lines associated with the solar field would either be underground or designed in accordance with APLIC standards and made visible to minimize the potential for golden eagles to collide with those

structures. Additionally the Gen-tie Project will be collocated within a BLM 368 corridor near two other high-voltage transmission lines. The location of the line adjacent to existing transmission lines would only marginally add to the risk of collision/electrocution from current baseline conditions.

In conclusion, due to the small size of the Project in comparision to the large amount of available golden eagle foraging habitat, the colocation of the Gen-tie Project within an exisiting transmission corridor, compliance with APLIC standards, and the intervening topography in relation to the nearest potentially active nest site, the Project is not likely to result in take of golden eagles.

References

Avian Power Line Interaction Committee (APLIC). 2012. Reducing Avian Collisions with Power Lines: The State of the Art in 2012. Edison Electrical Institute, APLIC, and the California Energy Commission. Washington, D.C., and Sacramento, California.

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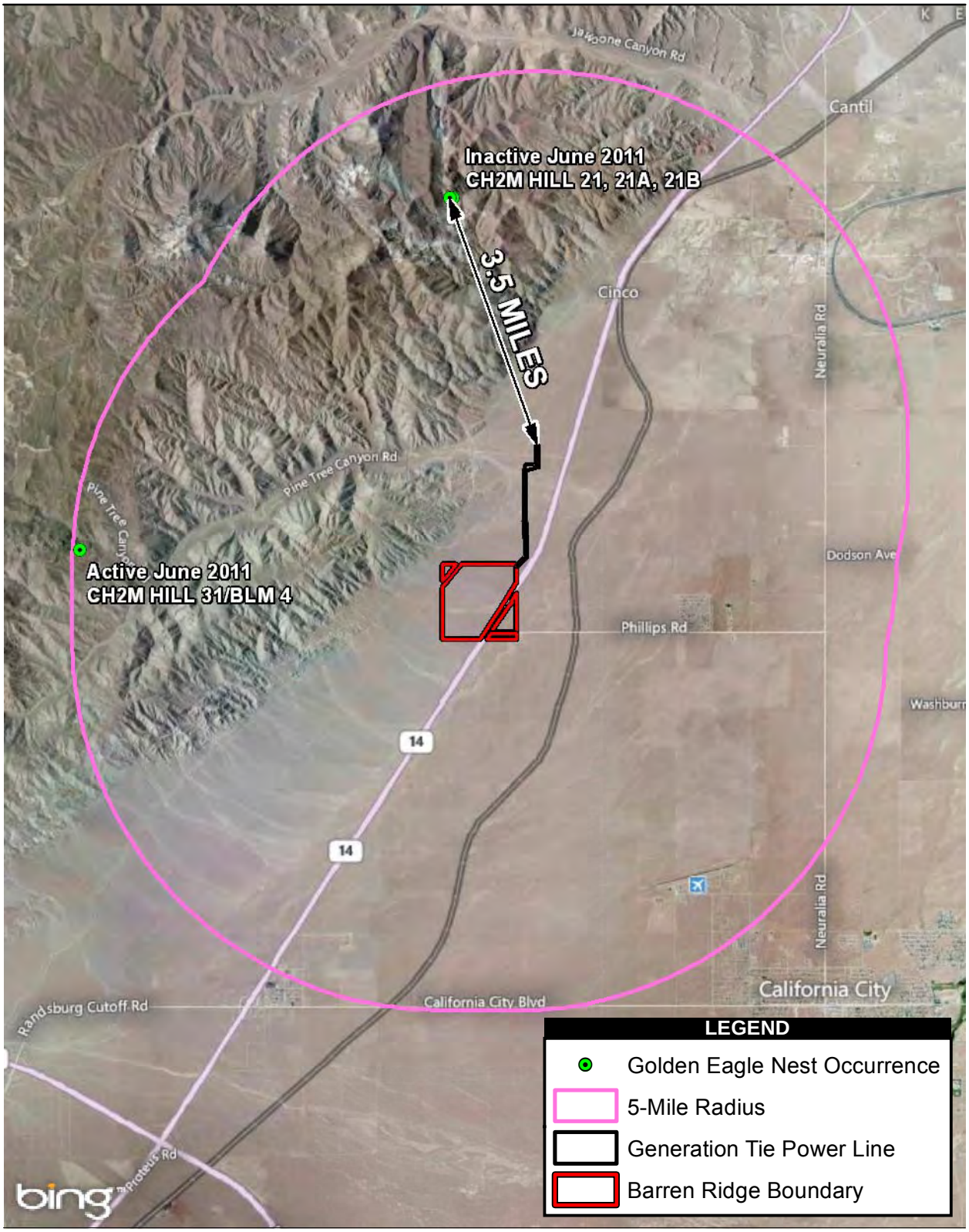
Pagel, J. E., D. M. Whittington, and G. T. Allen. 2010. Interim Golden Eagle Inventory and Monitoring Protocols, and Other Recommendations. Division of Migratory Bird Management, U.S. Fish and Wildlife Service.

Rincon Consultants, Inc. 2011. Supplemental Biological Results. RE Distributed Solar Biological Resources Assessment, Kern County, California. July.

Attachments

Figure 1 – Regional Golden Eagle Nest Occurrences 5-mile Radius
Figure 2 – Regional Golden Eagle Nest Occurrences 10-mile Radius



Source: RE Barren Ridge Solar One 2013; Sources: Esri, DeLorme, NAVTEQ, USGS, NRCAN, METI, iPC, TomTom
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2 1 0 2 Miles

Scale: 1 = 126,720; 1 inch = 2 miles

Figure 1
Regional Golden Eagle
Nest Occurrences 5-mile Radius

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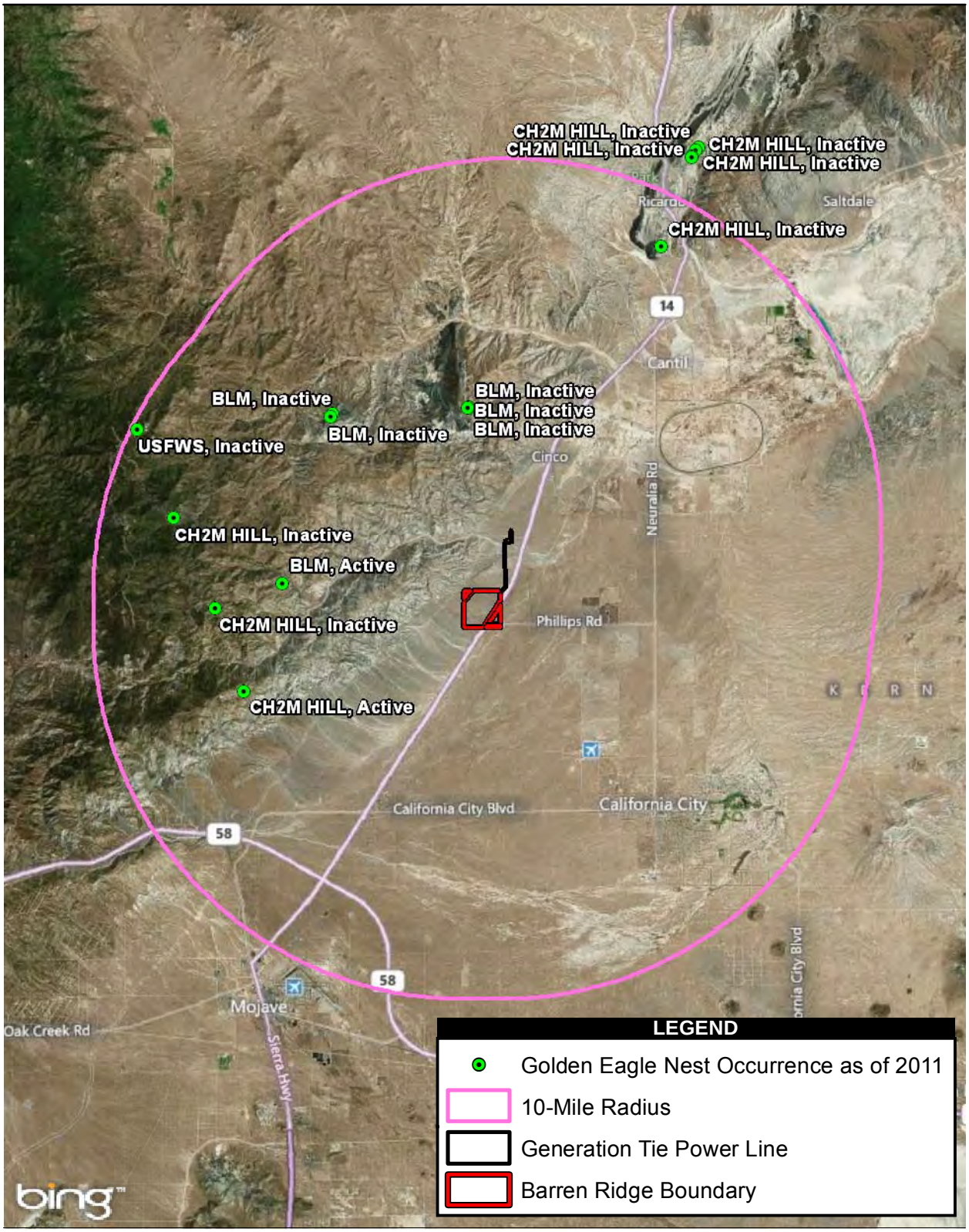

Source: RE Barren Ridge Solar One 2013; © Harris Corp, Earthstar Geographics LLC Earthstar Geographics SIO © AND © 2012 MapData Sciences Pty Ltd, PSMA © 2012 Zenrin
Sources: Esri, DeLorme, NAVTEQ, USGS, NRCAN, METI, iPC, TomTom

2 1 0 2 Miles

Scale: 1 = 126,720; 1 inch = 2 miles

Figure 2
Regional Golden Eagle Nest Occurrences 10-mile Radius

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